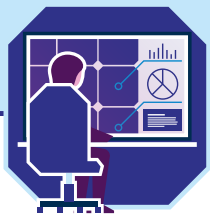


GRECO

PUTTING OPEN SCIENCE INTO ACTION

GRECO IS A H2020 PROJECT
WHICH **INTEGRATES**
AND **EXEMPLIFIES**
OPEN SCIENCE PRACTICES



OPEN SCIENCE

OUR WORLD IS CHANGING RAPIDLY ADDRESSING THESE ENORMOUS CHALLENGES REQUIRES NEW WAYS OF PERFORMING SCIENCE

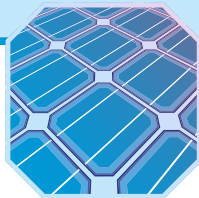
One such approach is the multinational research project GRECO. It aims at putting Open Science and other Responsible Research and Innovation (RRI) approaches into action in the photovoltaic sector.

RESPONSIBLE RESEARCH AND INNOVATION

GRECO implements RRI practices because European society demands new participatory ways to influence research goals and make science more integrative and open. In line with this, GRECO cooperates with a Social Advisory Board (SAB), which includes stakeholders from civil society, energy and open science policy as well as from science. This will help to test and improve the GRECO pilot on how to integrate RRI practices within any type of research project. This is a pre-requirement of the next EU-Framework Programme for Research and Innovation.

ADVANTAGES AND CHALLENGES OF OPEN SCIENCE

Open Science (OS) emerges as one of the pillars of RRI. Through OS tools GRECO aims to generate a more accessible research process. This will allow third parties to quickly take up the scientific concepts developed. As a result, science advances in a more transversal way. What is more, there is no double financing of the same research in different parts of the world. But the crucial question is: How far can Open Science be implemented while remaining competitive? GRECO will determine, evaluate and manage this aspect throughout the project.

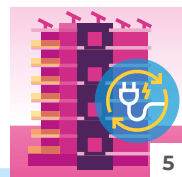
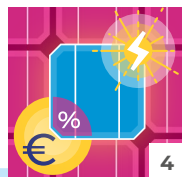
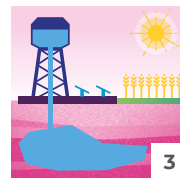
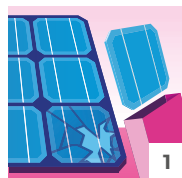


PIONEERING RESEARCH

SIX HIGHLY INNOVATIVE PHOTOVOLTAIC PRODUCTS

As one of the core parts of the project, GRECO researchers will develop six cutting-edge photovoltaic products:

1. **The in-situ repair methodology** that saves the cost of replacing defective modules, thus supporting the idea of a Circular Economy.
2. **An ageing model for photovoltaic modules** to improve the estimation of energy production of PV plants and increase investor confidence.
3. **A more sustainable solution for irrigation**, pursuing cost reduction and widespread use of renewable energy in agriculture.
4. **Cheaper and more efficient solar cells.**
5. **A novel modular system** that provides energy to buildings up to 8 storeys high.
6. **Improved PV heat-pump systems** enabling renewable sources in daily life.



MISSION POSSIBLE!

In the summer of 2020, the GRECO team will release a guide for implementing RRI and Open Science concepts in research projects, incorporating the practical learnings from GRECO. The guide aims at helping future research projects to smoothly integrate the RRI approach. All the research products will be developed through a whole RRI approach. This includes



CITIZEN SCIENCE

For the general public, scientific research often appears remote and exclusive. GRECO will involve citizens as amateur scientists and thus profoundly change societal acceptance of science and photovoltaics.

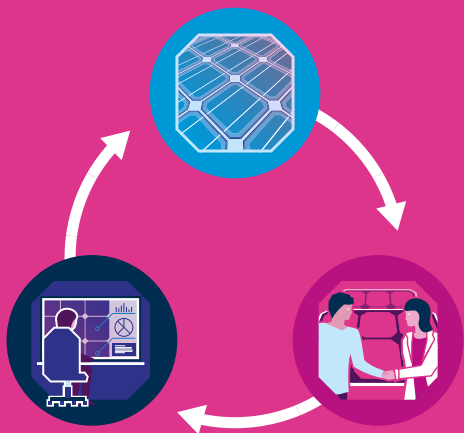
TIME FOR ACTION!

Scientific fields such as ecology, conservation and biology have a relatively long background in citizen science and civic movements. However, the energy sector is only just beginning to recognize the benefits of involving citizens in data collection, analysis and scientific research. One of the main endeavours of GRECO is to find a feasible way for citizens to contribute to photovoltaic research. Thus, GRECO will set up a Citizen Science Initiative to promote the provision of data for investigation purposes.

A DEEPER UNDERSTANDING

Citizens will actively participate in the process of research, development and innovation both in the design of new PV solutions and in the provision of data. Furthermore, Citizen Scientists will be involved by providing defective photovoltaic modules. The GRECO researchers will test their repair process on these modules from various manufacturers, and which have sustained different damage by climate or usage. The material data generated by Citizen Scientists will be included in GRECO research. In return, society will gain awareness and the ability to influence the spread of solar energy - thus leading to an overall deeper understanding of photovoltaic research.

Ethics, Gender, Public Engagement, Governance, Science Education and Open Science practices. Regarding the last ones, GRECO researchers will adopt Open Access and Open Data policies. Moreover, they will implement Open Notebooks, among many others, and share their experiences. This should encourage other researchers to apply RRI policies within a real project – mission possible!



GRECO IN A NUTSHELL:

Duration: 36 months (June 1, 2018 - May 31, 2021), GRECO (H2020-787289)

Funding: €3 million

Coordinators: Dr. Ana Belén Cristóbal López and Prof. Carlos de Cañizo Nadal, Instituto de Energía Solar, Universidad Politécnica de Madrid.

Consortium: Universitat Pompeu Fabra (Spain), Universidade de Évora (Portugal), Central Solar Energy Laboratory of Solar Energy of the Bulgarian Academy of Sciences (Bulgaria), Helmholtz-Zentrum Berlin (Germany), Reiner-Lemoine Institute (Germany), European Science Communication Institute (Germany), Universidade de Sao Paulo (Brasil), The Government of Andalusia (Spain), the Euro-Mediterranean Irrigators Community (Spain) and Insolight (Switzerland)

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